important; and, if so, convenience requires us to adopt the smaller rather than the larger divisions."

Convinced by these weighty arguments, the authors of "Zoogeography" adopt the six Sclaterian regions without exception, and use them throughout their work, making only the change of the name of the "Indian" region into the "Oriental" region, as was suggested by Dr. Wallace. They take these six regions one after the other, and describe their extent, the best mode of their division into subregions, their most obvious physical features, and the chief zoological characteristics which distinguish them. One of the more difficult points to be considered is the relation of North America to the Palæarctic region. So similar in many respects are their faunas that Heilprin had proposed to unite them under one name as the "Holarctic" region, which has met with approval by Huxley, Newton, Lydekker, and other writers. But after discussing the question, our authors follow Wallace in rejecting Heilprin's proposal, and give good reasons for doing so.

The third and most important part of the present work is the zoological section, to which we must now direct attention. It is obvious that an exact knowledge of the general distribution of animal life must be based on a thorough acquaintance with the particular distribution of each species. But, as is well pointed out in the present work, the distribution of animal life in many areas "has not been investigated in sufficient detail to afford the necessary data, and in such cases it is impossible to define the range of species with precision." Moreover, in many groups of animal life, especially in the lower forms, the species are so multitudinous, and as yet so little known, that they cannot be used for such a purpose. But all the higher forms, such as mammals, birds, reptiles, and amphibians have been dealt with in this work, besides the more important families of fishes, and a selection of the better-known groups of insects and molluscs. The zoological portion of the letterpress of "Zoogeography" occupies some forty-four pages of two columns each, and seems to be very complete, though it involves a mass of details, which it must have been a hard task to put together and to arrange in order.

Following this portion of the work is a "bibliography," containing the titles of the separate books and the principal articles published in journals relating to zoological distribution. This, we think, though useful as it is, might have been improved by the addition of the names of the leading authorities on the faunas of each of the different parts of the world, something like that which was given by Dr. Sclater in his presidential address to the Biological Section of the British Association at Bristol in 1875. It must be admitted, however, that such a list, though of much value, would have somewhat inconveniently increased the bulk of the "bibliography."

We now come to the maps, the most important feature in the work, which have been planned to illustrate the distribution over the world's surface "of more than seven hundred families, genera, and species of existing animals." It is to be regretted that the extinct forms of animal life have been altogether unnoticed, as they serve to explain in some degree the anomalies of the present state of distribution. That the task of inserting them would have been serious it must be confessed. We observe that the dodos (Dididæ) have been mentioned. But we think that a few words might also have been devoted to the moas (Dinornithidæ) of New Zealand, the rocs (Æpyornithidæ) of Madagascar, and to other forms which have only recently become extinct. Taken as a whole the thirty-six plates of the atlas are excellent, and fully sustain the claim of the great firm which has produced this handsome volume to issue nothing but first-class work.

In books of this kind, accompanied by a large number of illustrations, there are often slight discrepancies between the plates and the descriptions of them in the text. We find nothing of this sort in the present work, in which it is obvious that the main object of the text has been the description and explanation of the illustrations. In fact, we consider that Mr. Bartholomew and his enterprising firm deserve the greatest credit for the production of the fifth volume of their "Physical Atlas," which, we are sure, will long remain the leading authority on "zoogeography."

CENTRAL ASIA.

L'Asia Centrale: noti di viaggio e studi di un Diplomatico giapponese. By Nisci Tocugiro (Nishi Tokujiro). Translated by L. Nocentini. Pp. xxx+317. (Turin: Unione Tipografico-Editrice Torinese, 1911.) Price 4.50 lire.

THE distinguished Sinologist, Prof. Lodovico Nocentini, has translated into Italian an interesting Japanese work on the geography, ethnography, and political conditions of Central Asia, which was written a quarter of a century ago by Mr. Nishi Tokujiro (or Tokujiro Nishi, as we should say), then First Secretary of the Ministerial Council at Tokyo. The translation, with additions and notes by the translator, which bring it up to date, has now been presented to the Italian Geographical Society, with a preface by the president of that body, Signor Cappelli. Mr. Nishi has been prevented by other work from adding new material to the book himself.

In 1880 Nishi Tokujiro, then attached to the Imperial Legation at St. Petersburg, left on his homeward journey by way of Central Asia, passing through Russia and Chinese Turkestan on the way, and this volume, produced in 1885, was the result of his *noti di viaggio* and general knowledge. When published it would, had it been translated promptly, have been of great interest, and even now, with the addition of Prof. Nocentini's notes, it is valuable as a general account of Central Asia. For non-Italian readers, however, its value is somewhat discounted by the unscientific transliteration of all names, whether Russian, Chinese, Turki, or what-not, into a guise which, though it may reproduce the correct sounds of the originals to an Italian reader, is confusing to those of other nations, who have to re-transliterate into the forms familiar to them. What English or German reader, to take instances, would at once recognise in "Coccienco" the Russian name Kochienko, in "I-'r O-scen" the Chinese Yi-erh Wo-shen, in "Cucia" or "Cuccia" the town of Kucha, or even in "Culgia" that of Kuldja? And ought the town of Piotr-Alexandrovsk to be literally translated into Italian as "Pietro-Alessandro"? In England we do not talk of "Coachienco," "Yee-erh, " "Cootcha," or "Peter-Alexander" (though we might have sixty years ago), and nowadays the strictly scientific "Kočyenko," "Kuldža," or "Kuča," would be perfectly well understood here. In this matter of transliteration the Italians (like the French in dealing with Arabic names) are half a century behind the times. This book will be read, out of Italy, only by those who have some knowledge of Central Asia and its languages, but do not necessarily know even enough Italian to recognise the name of the author of this book in its Italian form, "Nisci Tocugiro."

Mr. Nishi's work was a very complete description of the lands and peoples of Central Asia, so far as counting of heads goes, but not a particularly thorough one. Its historical sections are the best, but its great interest lies simply in the fact that it was the work of a Japanese so early as the eighteenth year of Meiji. Even then the relentless advance of Russia in Asia was being noted by the watching Japanese, and the resources and possibilities of her Asiatic dominion were being "sized up" by the unimportant traveller Nishi, who was significantly, on his return to Japan, attached to the general staff. Who knows but even then the Japanese were beginning to prepare for the inevitable struggle, which came twenty years later, just when the dominion of all Asia seemed about to fall irrevocably into Russian hands? Mr. Nishi had no great belief when he wrote in the ability of China or even England to stop Russia. He seems to shrug his shoulders over the vain English protests against the advance of the colossus of the north, which emanated in "Mervous" succession from our Foreign Office for twenty years, and ended with the "Penjdeh incident" (Signor Nocentini calls the place "Pange"), which seemed to make our weakness patent to all the world. The ally of 1902 did not seem very admirable to a Japanese in 1885. We have, however, got over our "mervousness" now that Russia is brought up short by the great mountain-barriers, and indeed it is not probable that we ever had any real justification in trying to stop her advance into Turkestan. Her taking of Merv was much more inevitable than our taking of Mandalay, and she only went beyond bounds when she took Penjdeh and the Kushk valley from Afghanistan. The real danger of war which then ensued was a signal to her to stop, for we know now, since Japan has shown us, that Russia's power is all "bluff"; she had no more wish for war with us in 1885 than with China over the question of Kuldja in 1880, or with Japan in 1903. In 1880 China met her bluff with greater bluff, and in 1903 Japan took her at her word, with the result that the history of Asia has entered on a new phase, incredible had it been prophesied in 1885, even to the self-confident countrymen of Mr. Nishi.

Signor Nocentini brings the political part of the book fully up to date, even including an account of Dr. Stein's discoveries and the text of the Anglo-Russian agreement relative to Tibet. We see from this that the prohibition of the sending of scientific expeditions to Tibet by either Russia or England expired in 1910. But in view of the disturbed condition of Tibet owing to the Chinese invasion, it is not probable that any such expeditions will be sent there for some time yet.

The typographical and ethnological details have not been brought up to date. The mountains stand where they stood in 1885, and the Jaxartes has not yet again changed its course, while the ethnic peculiarities of Kirghiz, Uzbegs, Sarts, Eleuths, and Dungans remain the same, so this does not matter. But details of the population of the cities and of the dislocation of Russian troops in Asia in 1881 have now merely an antiquarian interest.

Nevertheless the book is a very interesting one, and is well worth persual by those who study the subject. What the future of this huge land will be, who can say? The Japanese war has probably put a stop to all Russian advance for many a year to come, unless a parliamentary China should foolishly (thinking herself, in Babu-wise, the equal of Japan) try to oust Russia from northern Manchuria. In that case China will lose much, while Japan will look benevolently, this time, upon Russia's chastisement of her. Then we English would be well advised to insist that Russia, whatever else she may take, shall leave Chinese Turkestan in Chinese hands. Otherwise a fresh attack of "mervousness" may arise, if Russia is in Kashgar and Khotan.

If there is no war between Russia and China within the next few years, the Russians will be able to devote their rather intermittent energies to the development of the enormous territory that is already theirs. Railways are a necessity to her military hold of Central Asia, and there are lines yet to be built which are of great strategic importance, though they may not "pay" for a century. A railway from Orenburg through Akmolinsk to Semipalatinsk is projected, and another line should run from Tashkend to Krasnoyarsk, by way of Aulië-ata, Vyernyi (where the recent earthquake took place), Sergiopol, Semipalatinsk, and Barnaul, with a branch to the Ili valley, and, if China will permit, on to Kuldja. This line would bind Turkestan to eastern Siberia, and enable troops to be railed from Samarkand to Irkutsk direct. But the country to be traversed is mostly steppe, and the immediate value of the line would only be military, as in the case of the existing Orenburg-Tashkend railway. So Russia will be condemned indefinitely to pour out millions of roubles into the wilderness (and the contractors' pockets), and only a century hence will the slow work of the present day bear fruit in a great and mighty country, the home of millions of peaceful and hard-working Russians—a new Canada.

The future of China, who can prophesy? But it is improbable that a century hence China will have allowed the Japanese to retain their control of southern Manchuria, or even Korea, and the islanders may be driven back to their home, even as we were expelled from France in the fifteenth century. History always repeats itself in similar cases. But Japan will have done her work well, and the notes made by Nishi Tokujiro in his journey twenty-five years ago would have shown us then, had we had ears to hear or eyes to see, that already Japan was studying the huge continent at her door, and weighing the possibilities that might come forth from it in the fulness of time.

It remains only to say that the book is "bound" only in paper covers, and falls to pieces directly it is cut. We presume that Italians send their books to the binders before they read them. L4.50 seems a high price for a book of 300 pages that has no binding and no illustrations. Unlike the French, the Italians understand the value of an index, and this book has a good one.

LUCIANI'S HUMAN PHYSIOLOGY.

Human Physiology. By Prof. L. Luciani. Translated by Frances A. Welby. Edited by Dr. M. Camis. With a preface by Prof. J. N. Langley, F.R.S. In two vols. Vol i., Circulation and Respiration. Pp. xiv+592. (London: Macmillan and Co., Ltd., 1911.) Price 18*s.* net.

THE rapid progress in the science of physiology makes it increasingly difficult for any single individual to give a comparatively complete presentation of the whole subject. In consequence of this fact, the larger text-books are usually written by several authors. While there are many advantages in this method, a loss of unity in the treatment of the subject inevitably results. Luciani's work gives a more detailed account of the subject than the majority of text-books of single authorship, and thus occupies a place intermediate between the larger works and those of moderate size.

The arduous labour of translation has been carried out very efficiently, the English version being clear, accurate, and eminently readable. The translator has also had the advantage of the assistance and advice of Dr. Aders-Plimmer on chemical subjects, and of Mr. W. L. Symes on many technical difficulties. The references to the literature of the subject appended to the various sections of the work form a very useful feature. The editor, Dr. M. Camis, has rendered these more complete by the addition of the chief recent English and American physiological papers. These references will undoubtedly offer valuable guidance to senior students of physiology desirous of extending their knowledge of physiology beyond the limits of their text-books.

The present volume, which extends to 600 pages, deals with the general physiology of living matter, the physiology of blood, the circulation, respiration, and lymph.

The introduction gives a brief but masterly account of the general objects and domain of physiology. The first three chapters deal with the structural features, the chemical and physical basis of living matter, its fundamental properties, and the conditions by which it is influenced. The third chapter closes with an interesting account of the hypotheses of Pflüger, Hering, and Verworn regarding the nature of the processes which take place in living substance.

The fourth chapter deals with the formed constituents of blood. The historical development of the subject is excellently epitomised. The general physico-chemical characters of the blood as a whole are next described. A brief account of the methods used in determining the rate of coagulation might have been added with advantage. The morphological elements of blood are then described. The plate showing absorption spectra is somewhat diagrammatic, methæmoglobin and acid hæmatin being represented as having identical spectra.

An excellent account of the chemical and physical properties of blood plasma, and of the theories of its coagulation, forms the main subject-matter of chapter v. The chapter concludes with an account of the effects of bleeding, transfusion, and the bactericidal and immunising properties of blood.

An exceptionally detailed account of the historical development of our knowledge of the circulation of the blood is given in chapter vi. The author ascribes the discovery of the true course of the circulation to Cesalpinus rather than to Harvey, differing in this respect from the large majority of physiologists. In the preface to this volume, Prof. Langley has given the chief reasons for critical caution in studying Prof. Luciani's views on this subject.

The mechanics of the heart and blood flow are fully discussed in chapters vii. and viii. The discussion of the myogenic and neurogenic theories of cardiac rhythm given in chapter ix. offers an excellent example of the author's skill and impartiality in presenting the evidence for and against rival views. The account given embodies the most recent work on the subject, including that of Carlson on *Limulus polyphemus.*

Chapter x. provides an excellent account of the vaso-motor nervous mechanism. Chapter xi. is devoted to the chemistry and physics of respiratory exchanges. A most interesting review of the historical development of the subject is given, both from the chemical and physiological points of view. A description of Haldane's method for determining the oxygen capacity of blood might have been appended to the account of the methods for the extraction of the gases of the blood.

The nervous and chemical control of respiratory rhythm form the subject-matter of chapter xiii. Some interesting recent observations by Italian workers, throwing new light on the mode of production of certain forms of polypnœa in muscular work, are recorded. A somewhat fuller discussion of recent views on the chemical regulation of respiration would have been welcome.

The present volume concludes with an excellent account of the physiology of lymph and lymphatic organs.

The book is singularly free from errors; yet in a text-book of this extent minor errata inevitably occur. The following may be mentioned with the view of aiding to some extent in the preparation of a table of errata. On p. 25 "cornea" is used instead of "stratum corneum"; on p. 109 "carbon bisulphide"